

## Chemical Occurrences - August, 1998

### Class 1:

None

### Class 2:

SAVANNAH RIVER - Worker injured due to overpressurization event

ORNL - Several personnel exposed to acid fumes.

ORNL - Hydrogen fluoride gas leak from depleted uranium hexafluoride cylinder.

SAVANNAH RIVER - Break in coupling on top of cement silo exposes workers to cement cloud.

### Other Occurrences of Note:

Potentially flammable concentrations of benzene. \*\* Soil contaminated by PCBs misclassified\*\*  
PCBs Located in waste storage tank.

**Note:** Occurrences included in this report are date-sorted according to the "Notification Report" date, this promotes timely alerting of occurrences.

### Highlights of ORPS Occurrences for August, 1998

- **32** Total reports representing potential chemical safety concerns.
- **0** Total reports characterized as "**Emergency**"
- **6** Total reports characterized as "**Unusual**"
- **26** Total reports characterized as "**Off-Normal**"
  
- **7** Total reports listing **DP** as Cognizant Secretarial Office
- **22** Total reports listing **EM** as Cognizant Secretarial Office
- **2** Total reports listing **ER** as Cognizant Secretarial Office
- **2** Total reports listing **NE** as Cognizant Secretarial Office
  
- **0** Class 1
- **4** Class 2
- **14** Class 3
- **14** Class 4

### Definitions of Classes

### SUMMARY OF CLASS 2 OCCURRENCES:

**Potential Chemical Overexposure due to Overpressurization of Waste Container; Worker Injured. SR-WSRC-SLDHSD-1998-0008: (EM)**

On 8/25/98 at the Savannah River Site, while preparing to remove the lid of a 85 gallon waste container, container, the lid expelled apparently due to overpressurization. Several of the containers, known to contain 1,1,1, Trichloroethane, were being sampled for waste characterization at the time of the incident. Though physically not struck by the lid, the worker was potentially exposed to the chemicals in the drum. The worker proceeded immediately to an eyewash station and flushed his eyes. He later complained of burning sensation in his lungs and nausea. The worker was transported to the University Hospital in Augusta, Ga., and a radiological and industrial hygiene survey is in progress.

Due to the continued frequency of similar incidents throughout the DOE complex, as well as the 'near miss' nature of the event, and the level of focus that overpressurization events have had in this and other reports, makes this event noteworthy.

#### **Potential Exposure of Several Personnel to Acid: (ER) ORO-ORAU-ORISE-1998-0008.**

On August 17th, at the Scarboro Operations Site, several personnel noticed a faint acrid odor outside of the building. Onsite maintenance was contacted, who began investigating the smell. Also contacted was the Safety & Environmental Protection Department of ORISE who responded to the scene. Two East Tennessee Mechanical Group (ETMG) water plant workers who were in the area, noticed the smell and felt irritation in their throat and lungs. These workers later developed difficulty in breathing and were sent for medical treatment at the local emergency room. One of the workers also developed a rash over his extremities and upper body.

The cause of the odor turned out to be a combination of larger than normal amounts of sulfuric acid fumes emitted from the overhead stacks which were adjacent to the area where the ETMG personnel were working, exacerbated by a weather inversion situation causing the fumes to exit the stack and flow over building and collect in the mechanical air handling area where the workers were stationed. This occurrence was categorized as an "Unusual" event due to the unique combination of circumstances that led to the exposure of the workers. It also focuses on the need to be prepared for all levels and all possibilities, including remote and unlikely events. All possible emissions from stacks should be categorized, and workers in the vicinity should be informed and prepared in cases such as this one.

#### **Hydrogen Fluoride Gas Leak from Depleted Uranium Hexafluoride Cylinder During grit Blasting Operation: Worker was Wearing Air Respirator Equipment. (NE): ORO-BJC-K25GENLAN-1998-0010.**

On August 31, at the Oak Ridge K-25 Site, a subcontractor performing grit blasting as part of the UF6 Cylinder Refurbishment Project, noticed a stream of smoke coming from an area of the cylinder being cleaned. The employee immediately stopped the grit blasting operation, shut down the ventilation system, and evacuated the building. Other personnel were immediately notified and evacuated. The cylinder contained approx. 10 tons of depleted uranium hexafluoride at .2% assay.

The material release due to the leak was hydrogen fluoride gas. The employee was wearing air respirator equipment, and there was no exposure to this employee or others in the area.

The leak was successfully patched by Radiological Control and Industrial Hygiene personnel with level "A" protection. The grit blasting operation was suspended until further evaluation is completed.

**Potential Concerns and Issues Due to Break in Coupling on Top of Cement Silo Releasing Cloud of Cement; Personnel Injured Due to Exposure to Cement Cloud: (EM).**

On August 13, at the WSSR site, a coupling at the top of a cement silo broke causing a cloud of cement. At least three employees were near the silo and were directly exposed to the cement dust. One of the employees was inside a manbasket approximately 55 feet off the ground at the time of the occurrence; he managed to exit the manbasket and made it the the walkway safely. The other two workers were working on the ground when the incident occurred. Visibility was limited by the cement cloud. One of the workers attempted to shutdown the system via computer, but was unable to do so; the system was shut down manually within 2-3 minutes. According to an observer, the cement came out of the top of the silo approx. 30-40 feet and the cloud surrounded the area around the silo.

Two workers went to the shower trailer; they both complained of irritation in their eyes. ES&H personnel attempted to wash their eyes while in the shower. One worker continued to have irritation in his eyes - he was sent off site for medical attention, resulting in one day lost work.

The individual who exited the manbasket, complained of pain in his back and eye irritaiton. He returned to full duty without loss of time.

This incident follows two other similar instances that happened with this cement silo. In addition, because the shut offs did not work properly, this event is being investigated further. Also, eyewash stations were not readily available, and the MSDS for cement was not attained and followed for treatment fo the eyes; the individuals did not get immedidate and proper eye wash treatment for 15 minutes as per the MSDS."

**OTHER OCCURRENCES OF NOTE:**

**The following Class 3 Level occurrences are worth noting, becuse two of them involved PCB contamination, the other because of the potentially flammable concentrations of benezene.**

**1)Potentially Flammable Material In Waste Containers. SR--WSRC-SLDHZZ-1998-0006 (EM):**

On 07/29/98, at Savannah River two waste containers were received from GTS Duratek (formerly Scientific Ecology Group) with sodium tetraphenylborate. The containers did not have the required vent installed and have potentially flammable concentrations of benezene due to radiolytic decay of TPB during extended storage. Because of this Cell 2 investigation, additional cells were placed on standby. This was due to a potentially wider variation in the sodium tetraphenylborate (TPB) inventory term in the analysis, thus indicating a greater TPB concentration within the entire waste stream.

**2)Soil Contaminated by PCBs Because of Accidental Release of Decontamination Wash Water. ID-LITC-TRA-1998-0012 ( NE):**

On 8/21/98 at Idaho National Engineering Lab, a damaged drain valve on a decontamination wash water tank caused approximately 120 gallons of PCB contaminated water to be released. The PCB was in excess of reportable quantity of one pound of PCB. The drain valve was damaged during subcontractor relocation of the decontamination wash down trailer and occured at the end of the shift; the release was discovered by workmen the following day.

**3)Potential Concerns Related to PCBs Located in a Waste Storage Tank (EM) ORO--ORNL-X10WSTEMRA-1998-0005 .**

On 07/09/1998, at ORNL, during a review in preparation for a shipment of waste from the building 7830A tank, environmental compliance personnel questioned the May 1998 analytical results showing 353 parts per million (ppm) polychlorinated biphenyls (PCBs) in the waste. Further investigation discovered analytical results dated 1995 showing 389 ppm PCBs. This tank was not labeled for PCBs and has not been identified on the annual report having PCBs over 50 ppm PCBs. There was no release or known health hazards associated with the discovery of the improperly labeled tank. The tank was relabeled for PCB storage.

**\*\*\* [CLICK HERE FOR A COMPLETE LISTING OF CLASS-1,2,3 & 4 EVENTS \(in pdf format\)](#) \*\*\***

**This Report was approved by:**

**DOE Office of Worker Health and Safety**

**Note:**

**Non-HTML versions of this document are available upon request.**

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